REMARKS

Applicant has reviewed and considered the Office Action mailed on <u>April 9, 2007</u> and the references cited therein.

Claims 1-2, 5-8, 10-13, 15-24, 26-27, and 29 are amended, claims 3-4 are canceled, and no claims are added; as a result, claims 1-2 and 5-29 are now pending in this application.

Information Disclosure Statement

The information disclosure statement (IDS) filed on February 8, 2005 lists foreign references (DE-10154644 and DE-10154935) that were not considered by the Examiner because the IDS did not include English translations of the corresponding Abstracts. Copies of the English language abstract from corresponding patent family publications WO03041352 and WO03041353 are attached. It is respectfully requested that the Examiner consider these abstracts in the present application.

Drawings

The drawings were objected to because Figs. 1-2 and 4-5 do not include descriptive legends for the acronyms SIFS, RTS, TCTS, ACK, T, and Dav. The Applicants respectfully traverse this objection. 37 CFR 1.84(o) indicates that descriptive legends "may be required by the examiner where necessary for understanding of the drawing." It is submitted that the legends required by the Examiner in Figs. 1-2 and 4-5 are not necessary for understanding the drawings. For example, all of the acronyms identified by the Examiner are explained within the specification-as-filed, which may be referred to by anyone trying to understand the drawings. In addition, the use of acronyms and abbreviations within block diagrams and flowcharts of patent applications, without the inclusion of a legend, is a widespread practice in the U.S. patent system. As an example, Applicants are attaching U.S. Patent No. 7,133,381 to Sherman (Sherman). In Fig. 3 of Sherman, for example, the acronyms SIFS, RTS, and CTS appear with no legend. The abbreviation ACK also appears in this figure with no legend. Many other acronyms and abbreviations also appear in the other figures of Sherman with no legend. The primary examiner listed on Sherman is Chau Nguyen, who is also the Supervisory Patent Examiner for the present application.

Based on the foregoing, it is submitted that the requirement to provide legends on corrected drawing sheets is improper. Withdrawal of the drawing objection is therefore respectfully requested. If the Examiner maintains this objection, it is respectfully requested that he explain why descriptive legends are necessary for understanding the drawings of the present application and how this case distinguishes from Sherman in this regard.

Abstract

The Abstract section has been objected to because it was deemed too short to provide a brief, clear, and concise description of the Applicant's invention. It is submitted that the purpose of the Abstract section is not to provide a concise explanation of the invention but, instead, to provide a brief abstract of the technical disclosure in the specification (see, e.g., 37 CFR 1.72). A replacement Abstract section that provides a more comprehensive abstract of the technical disclosure has been included herein.

Claim Objections

Claims 5-6, 11-12, and 15-18 were objected to based on various informalities. These claims have been amended in a manner that is believed to address the Examiner's concerns.

35 USC § 112 Rejection of the Claims

Claims 1-6, 8-13, 15, 17-24, 26-27 and 29 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The claims have been amended in a manner that is believed to address the Examiner's concerns. More specifically, the terms "prefix adaptation" and "postfix adaptation" have been further defined in the claims and the antecedent basis problem of claim 29 has been remedied.

35 USC § 103 Rejection of the Claims

Claims 1, 3-19, 21-25 and 27-28 were rejected under 35 USC § 103(a) as being unpatentable over *Hui* (EP 1137217 A1) in view of *Soomro et al.* (US Publication 2003/0022686 A1).

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka,* 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson,* 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). MPEP 2143.03

Claim 1 is an independent claim directed to a method for transmitting data in a wireless channel. More specifically, the method comprises: (a) estimating throughput for a subsequent frame exchange using prefix adaptation, wherein prefix adaptation is a technique where, during a frame exchange with a remote entity, adaptation information is received from the remote entity before transmission of one or more data frames to the remote entity, said adaptation information including information on how to adapt a data transmit parameter; (b) estimating throughput for the subsequent frame exchange using postfix adaptation, wherein postfix adaptation is a technique where, during a frame exchange with a remote entity, adaptation information is received from the remote entity after transmission of one or more data frames to the remote entity; (c) selecting an adaptation technique from a group including prefix adaptation and postfix adaptation for use in the subsequent frame exchange based on said estimated throughput using prefix adaptation and said estimated throughput using postfix adaptation; and (d) performing the subsequent frame exchange using the selected adaptation technique.

Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests "selecting an adaptation technique from a group including prefix adaptation and postfix adaptation for use in the subsequent frame exchange based on said estimated throughput using prefix adaptation and said estimated throughput using postfix adaptation." The Examiner takes the position that Hui discloses selecting an adaptation technique based on estimated throughput because it teaches the selection of a "transmission mode" based on throughput. The transmission modes of Hui are shown on page 2, in Table 1, and each mode consists of a combination of modulation scheme, code rate, and physical layer bit rate. These modes do not represent "adaptation techniques," as that phrase in used in the claims. As stated in paragraph 20, lines 1-5 of Hui (as identified by the Examiner), a transmission mode is selected in the receiver and is then sent to the transmitter. The transmitter then uses the mode information to transmit data packets. This is an example of prefix adaptation and it is automatically used in Hui. No "selection" of

adaptation technique is made. Soomro et al. was only cited as showing an example of postfix adaptation. As with Hui, Soomro et al. also does not teach the "selection" of an adaptation technique.

In addition to the above, a person of ordinary skill in the art would not be motivated to combine Hui and Soomro et al. to achieve the method of claim 1 because neither of these references is concerned with or even mentions that there are different techniques for performing adaptation or the need to select an optimal technique during device operation. On the contrary, both references use only a single adaptation technique that does not change.

To expedite prosecution, claim 1 has been amended to clarify that the adaptation technique is being selected from a group that includes prefix adaptation and postfix adaptation. In addition, as described above, the terms "prefix adaptation" and "postfix adaptation" have been further defined in claim 1 to increase clarity. The term "data transfer" has also been replaced with the term "frame exchange" in most locations to increase clarity.

Based on the foregoing, it is submitted that a prima facie case of obviousness has not been established with respect to independent claim 1. Reconsideration and allowance of claim 1 is therefore respectfully requested. A similar argument applies to independent claims 19, 24, and 27.

Independent claim 11 is directed to a method for use in a wireless network. More specifically, the method comprises: (a) determining an adaptation validity duration as an estimate of the useful life of adaptation information; (b) when data is to be transferred, determining a time T since adaptation information was last obtained; and (c) when time T is greater than the adaptation validity duration, selecting prefix adaptation for a subsequent frame exchange.

Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests "determining an adaptation validity duration as an estimate of the useful life of adaptation information," "when data is to be transferred, determining a time T since adaptation information was last obtained," or "when time T is greater than the adaptation validity duration, selecting prefix adaptation for a subsequent frame exchange." The Examiner takes the position that Hui discloses determining an adaptation validity duration as an estimate of the useful life of adaptation information in paragraph 20, lines 45-58. The Applicants respectfully disagree. This passage is discussing the generation of adaptation information. It says nothing about an

"adaptation validity duration" as that term is defined in claim 11. The Examiner also takes the position that Soomro et al. discloses determining the last time a frame was obtained by the receiving end and comparing it to the current time when the frame is to be transmitted and the duration of the transmission in paragraph 22, lines 16-22. In the cited passage, Soomro et al. describes setting a timer at a second STA when an updated noise margin figure is received from a first STA. When it is time to transmit a frame, the second STA can "compare the most recent updated time of the frame with the recent time." The Applicant is not sure what this means, but it is clear that Soomro et al. does not mention "selecting prefix adaptation for a subsequent frame exchange" when a time T is greater than an adaptation validity duration. As the Examiner has admitted, Soomro et al. uses postfix adaptation. In addition, as described previously, neither Hui nor Soomro et al. teach the "selection" of an adaptation technique.

Based on the foregoing, it is submitted that a prima facie case of obviousness has not been established with respect to independent claim 11. Reconsideration and allowance of claim 11 is therefore respectfully requested.

Independent claim 15 is directed to a method for use in a wireless network. More specifically, the method comprises: (a) determining a time T since adaptation information was last obtained; (b) determining a postfix data transmission rate to be used when transmitting data using postfix adaptation, based on time T; (c) estimating throughput for a subsequent frame exchange using prefix adaptation; (d) estimating throughput for the subsequent frame exchange using postfix adaptation and the postfix data transmission rate; and (e) selecting an adaptation technique to be used for the subsequent frame exchange based on said estimated throughput using prefix adaptation and said estimated throughput using postfix adaptation.

Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests "determining a postfix data transmission rate to be used when transmitting data using postfix adaptation, based on time T," "estimating throughput for the subsequent frame exchange using postfix adaptation and the postfix data transmission rate," or "selecting an adaptation technique to be used for the subsequent frame exchange based on said estimated throughput using prefix adaptation and said estimated throughput using postfix adaptation."

As described previously, neither Hui nor Soomro et al., teach the "selection" of an adaptation technique. They each use one type of adaptation and they don't change between

adaptation types.   In addition, neither of the references discloses selection of an adaptation technique based on "estimated throughput using prefix adaptation" and "estimated throughput using postfix adaptation."   Further, neither reference determines a transmission rate to be used with postfix adaptation based on a time T since adaptation information was last obtained (i.e., a time that represents the age of the adaptation information).

Based on the foregoing, it is submitted that a prima facie case of obviousness has not been established with respect to independent claim 15.   Reconsideration and allowance of claim 15 is therefore respectfully requested.

Claims 5-10, claims 12-14, claims 16-18, claims 21-23, claim 25, and claim 28 are dependent claims that depend either directly or indirectly from independent claims 1, 11, 15, 19, 24, and 27, respectively.   Consequently, these claims are allowable for at least the same reasons as their respective base claims.   These claims also provide further bases for patentability.   For example, claims 5 and 6 include equations for use in estimating throughput using prefix and postfix adaptation, respectively.   Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests these estimation equations.   A similar argument applies to amended claims 21 and 22.

Claim 12 adds to the method of claim 11 "when time T is less than the adaptation validity duration, choosing between prefix adaptation and postfix adaptation for the subsequent frame exchange based upon estimated throughput."   Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests choosing between prefix adaptation and postfix adaptation when a time T is less than an adaptation validity duration.   Note that in claim 11 prefix adaptation is used for the subsequent frame exchange when time T is more than the adaptation validity duration.

Claim 14 further defines "determining an adaptation validity duration" of claim 11 as including "monitoring variation of adaptation parameters as a function of time."   Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests monitoring variation of adaptation parameters as a function of time to determine an adaptation validity duration.   The Examiner refers to paragraph 20, lines 45-58 of Hui which discusses the use of various parameters to generate adaptation information.   However, this passage does not discuss the generation of an "adaptation validity duration" as that term is defined in the claims.

Claim 17 further defines "determining a postfix data transmission rate" of claim 15 as including "choosing a first data transmission rate if time T exceeds a threshold value and choosing a second, different data transmission rate if time T does not exceed the threshold value." T is defined in claim 15 as time since adaptation information was last obtained. Neither Hui nor Soomro et al., either alone or in combination, teaches or suggests choosing a data transmission rate based on a time since adaptation information was last obtained. A similar argument applies to claim 18.

Claims 3-4 have been canceled herein without prejudice or disclaimer.

Claims 2, 20, 26, and 29 were rejected under 35 USC § 103(a) as being unpatentable over *Hui* (EP 1137217 A1) in view of *Soomro et al.* (US Publication 2003/0022686 A1) and further in view of *Stolyar et al.* (US Publication 2004/0266451 A1).

Claims 2, 20, 26, and 29 are dependent claims that depend either directly or indirectly from independent claims 1, 19, 24, and 27, respectively. Consequently, these claims are allowable for at least the same reasons as their respective base claims.

Please note that no part of the present response is to be deemed an admission that any 35 USC § 102(a) reference or 35 USC § 102(e) reference relied upon in a rejection is valid prior art in the present application. As such, the Applicants reserve the right to swear behind any such reference(s) at a later date.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (480-948-3745) to facilitate prosecution of this application.

Respectfully submitted,
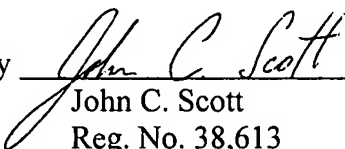
ADRIAN P. STEPHENS ET AL.

By their Representatives,

Customer Number: 45643
480-948-3745

Date   June 19, 2007   By _____

John C. Scott
Reg. No. 38,613

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Shellie Bailey

METHOD AND DEVICE FOR OPTIMISED ADSL DATA TRANSMISSION

Publication number: WO03041352

Publication date: 2003-05-15

Inventor: BINDE STEPHAN (DE)

Applicant: SIEMENS AG (DE); BINDE STEPHAN (DE)

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EP1442571 (A0)

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Cited documents:

WO0054473
US2002137467
US5943364
US5999540

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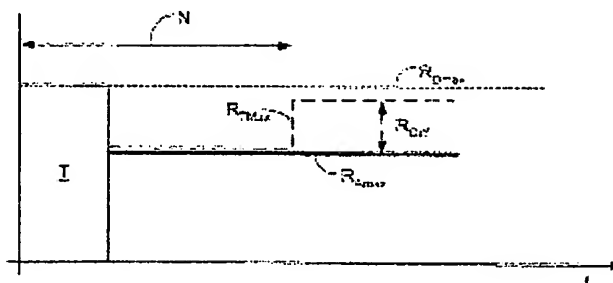
Abstract of WO03041352

The invention relates to a method and a device for optimised ADSL data transmission, preferably according to the standard T1.413, or ITU G992.1, whereby on a line fault occurring, a training procedure is initiated to determine the highest possible data transmission rate and during an uninterrupted data transfer period following a training phase (T), a highest possible data transmission rate is set without carrying out a new training, by successive increases in the applied bitrate in at least one transmission band and monitoring of error counts.
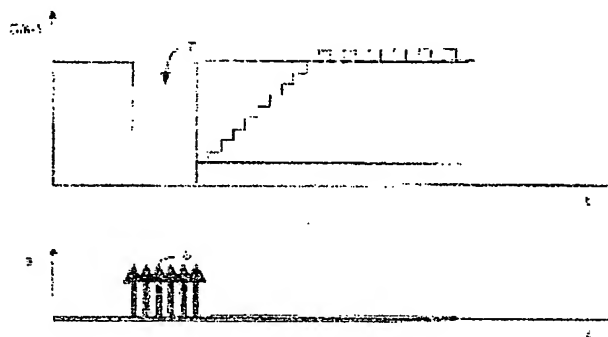
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METHOD AHD DEVICE FOR OPTIMISED XDSL DATA TRANSMISSION

Abstract of **WO03041353**

The invention relates to a method and a device for optimised xDSL data transmission. In a data connection with a maximum theoretical data transmission rate RTmax, the maximum currently available data transmission rate RAmax is determined by means of a training procedure between two modems. During the data transmission after a training phase (T), at least one modem determines the difference RDiff between the maximum theoretical data transmission rate for said connection and the maximum currently available data transmission rate RAmax from current measured SNR values and values derived therefrom for the maximum currently available data transmission rate RAmax and, in the case where a threshold value RDiffMax is exceeded, a new training procedure is invoked.